## REMARKS/ARGUMENTS

Claims 1-11 have been elected without traverse. Claims 12-46 have been withdrawn from consideration.

Claims 1-7 and 9 have been rejected over Miya et al. in view of Mito. Claims 10-11 were rejected over Miya et al. and Mito, further in view of Matsukawa et al. Allowable subject matter was found in claim 8.

Claim 1 has been amended to include the feature of claim 8, which is being canceled. Claims 2-7, 10 and 11 depend from claim 1 and are not amended, and therefore, claims 1-7, 10 and 11 are ready for allowance.

Claim 9 is being placed in independent form. New claims 47-54 depend from claim 9 and correspond to claims 2-7, 10 and 11.

New independent claim 55 is also being submitted.

As shown herein, it is a characteristic of amended claim 9 that a substrate processing apparatus in which a processing liquid is supplied to one major surface of a substrate and one major surface is subjected to predetermined substrate processing comprises: an atmosphere blocking member which is faced with other major surface of the substrate and that is away from the substrate; and a gas supplying unit which supplies an atmosphere gas to a space which is created between the atmosphere blocking member and the substrate, wherein a substrate-facing surface of the atmosphere blocking member which is faced with the other major surface of the substrate becomes closer to the other major surface of the substrate with a distance toward a periphery edge of the atmosphere blocking member, and the atmosphere blocking member has a diameter which is the same as or smaller than a diameter of the substrate.

This structure is not seen in the art, and enables the present invention to achieve the following favorable effects. That is, if a plan size of an atmosphere blocking member is larger than the size of a substrate, a periphery edge of the atmosphere blocking member will stick out beyond the substrate in the horizontal direction and a portion of the substrate-facing surface of the atmosphere blocking member (a periphery edge area) will be exposed to a mist-splashed atmosphere (a region around the substrate). A mist created during rinsing (mist-form processing liquid) will therefore be kicked back at the periphery edge area and splashed toward the other major surface of the substrate.

On the contrary, when the plan size of the atmosphere blocking member is set to be the same as or smaller than the size of the substrate, the substrate-facing surface is not exposed to the mist-splashed atmosphere, thus solving the problem above (effect (1).

Furthermore, the atmosphere gas is supplied to a space which is created between the atmosphere blocking member and the substrate, and the substrate-facing surface becomes closer to the substrate with a distance along the direction which is toward the periphery edge of the substrate. Because of this, the atmosphere gas is compressed in the vicinity of a periphery edge of the space, and the pressure rises. As a result, the space is positively pressurized as compared with the periphery of the substrate (mist-splashed atmosphere), whereby the mist is effectively prevented from invading the other major surface of the substrate (effect (2).

According to the invention described in Miya et al. (US 2004/0040584), a peripheral edge of a substrate is held and grasped by chuck pins 108 embedded in a peripheral edge of the upper surface of the spin base 104 (blocking member). Therefore, the plan size of the spin base 104 is larger than the size of the substrate (Fig. 13). Because of this, a portion of the spin base 104 is exposed to a mist-splashed atmosphere, so that it is impossible to achieve the above-described effect (1) of the present invention. Even if the plan size of the spin base 104 is set to be the same as the size of the substrate, since it does not have the structure that a substrate-facing surface becomes closer to the substrate with a distance along the direction which is toward the periphery edge of the substrate, the above-described effect (2) of the present invention cannot be achieved.

Turning now to the invention described in Mito (US 2002/0106445), since a wafer chuck 8 is attached by suction to hold a substrate (paragraph 41), the structure thereof is completely different from that of the atmosphere blocking member of the present invention. The wafer chuck 8 described in the cited reference 2 is understood as a member which works as just a pipe for vacuum contact to connect a rotation axis 4 to suction portions 9a-9d (Figs. 1 and 2). Therefore, even though an atmosphere gas is supplied to a space which is created between the substrate-facing surface of an atmosphere blocking member and the other major surface of a substrate, it is impossible to positively pressurize the space as compared with a periphery of the substrate (mist-splashed atmosphere). Thus, the above-described effect (2) of the present invention can never be achieved. Not only that,

the invention described in Mito does not have a structure that the atmosphere gas is supplied between the other major surface of the substrate and the wafer chuck 8.

As shown herein, it is a characteristic of new claim 55 that a substrate processing apparatus wherein a processing liquid is supplied to one major surface of a substrate and one major surface is subjected to predetermined substrate processing comprises: a processing liquid supply nozzle which supplies the processing liquid only to one major surface of the substrate; an atmosphere blocking member which has a shape of a disk and which is faced with the other major surface of the substrate and that is away from the substrate; and a gas supplying unit which supplies an atmosphere gas to a space which is created between the atmosphere blocking member and the substrate, wherein a substrate-facing surface of the atmosphere blocking member which is faced with the other major surface of the substrate becomes closer to the substrate with a distance toward a periphery edge of the atmosphere blocking member over the entire circumference of the atmosphere blocking member.

On the contrary, according to the invention described in Miya et al., an atmosphere blocking member has a shape of a disk, but it is never disclosed that the structure that a substrate-facing surface becomes closer to a substrate with a distance toward a periphery edge of the atmosphere blocking member over the entire circumference of the atmosphere blocking member. Further, the invention described Mito discloses the structure that a processing liquid is supplied only to one major surface of a substrate. However, the wafer chuck 8 does not have a shape of a disk, and it is never disclosed that a substrate-facing surface becomes closer to a substrate with a distance toward a periphery edge of the wafer chuck 8 over the entire circumference of the wafer chuck 8. Because of this, it is impossible to effectively prevent the mist from invading the other major surface of the substrate.

On the other hand, according to the present invention, while supplying the processing liquid only to one major surface of the substrate, the atmosphere gas is supplied to a space between the disk-shaped atmosphere blocking member and the other major surface of the substrate, as well as having the structure that a substrate-facing surface becomes closer to the substrate with a distance toward a periphery edge of the atmosphere blocking member over the entire circumference of the atmosphere blocking member. Because of this, the atmosphere gas is compressed in the vicinity of a periphery edge of the space, and the pressure rises, as a result, the space is positively pressurized

as compared with the periphery of the substrate (mist-splashed atmosphere), whereby the mist is effectively prevented from invading the other major surface of the substrate. Further, the atmosphere gas supplied to the space gushes out from a gap between the periphery edge of the substrate and that of the atmosphere blocking member toward a region around the substrate, but as a substrate-facing surface has the above-described structure, a flow velocity of the atmosphere gas which gushes out from the gap is enhanced and the invasion of the mist to the other major surface of the substrate is prevented further effectively.

For these reasons, the inventions of claims 1-7, 9-11 and 47-55 are submitted to be patentable over the cited prior art. Allowance is therefore requested.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on June 23, 2005:

James A. Finder

Name of applicant, assignee or Registered Representative

Signature

June 23, 2005

Date of Signature

JAF:lf

Respectfully submitted,

James A. Finder
Registration No.: 30,173
OSTROLENK, FABER, GERB & SOFFEN, LLP
1180 Avenue of the Americas
New York, New York 10036-8403
Telephone: (212) 382-0700